Live (stained) benthic foraminifera in the Whittard Canyon, Celtic margin (NE Atlantic)

Titre	Live (stained) benthic foraminifera in the Whittard Canyon, Celtic margin (NE Atlantic)
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Résumé en anglais	Living (Rose Bengal stained) benthic foraminifera were investigated at 18 deep-sea stations sampled in the Whittard Canyon area (NE Atlantic). The stations were positioned along 4 bathymetric transects ranging from 300 to 3000 m depth: two along the main canyon axes (Western and Eastern branches) and two along adjacent open slopes (Western and Eastern slopes). The aim of this study was to assess changes of foraminiferal standing stock, composition and microhabitat in relation to the physico-chemical conditions prevailing at and below the sediment–water interface in various canyon and open-slope environments. Minimal oxygen penetration depths and maximal diffusive oxygen uptakes were recorded at upper canyon stations, suggesting a high mineralisation rate. This is confirmed by the high phytopigment concentrations measured in the sediment of the upper canyon axes. Foraminiferal abundance was positively correlated with diffusive oxygen uptake and phytopigment concentration in the sediment. This suggests a control of organic matter fluxes on the foraminiferal communities. Foraminiferal abundance was generally higher along the canyon axis compared to open-slope sites at comparable water depths. The species composition varied with water depth along all four transects, but was also different between canyon branches and adjacent slopes. The silty/sandy intercalations at many of the deeper canyon stations may have been rapidly deposited by fairly recent gravity flows. At station 51WB (3002 m), the faunal characteristics (strong dominance, shallow infaunal microhabitats) suggest that the foraminiferal community is in an early state of ecosystem colonisation after these recent sedimentation events, which would have supplied the important amounts of phytopigments.
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